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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Liniak, Berenato, Longacre & White
Ste. 240
6550 Rock Spring Drive
Bethesda, MD 20817

EXAMINER

FERGUSON, MICHAEL P

ART UNIT

PAPER NUMBER

3679

DATE MAILED: 04/02/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/020,275

Applicant(s)

YAGYU, WALTER TAKEO

Examiner

Michael P. Ferguson

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-3 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 December 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. Claims 1-3 are objected to because of the following informalities:

Claim 1 (line 1) recites "fibers reinforcement". It should recite --fiber reinforcement--.

Claim 1 (line 2) recites "ball joints composed". It should recite --ball joints each composed--.

Claim 1 (line 3) recites "said assembly". It should recite --said tie rod--.

Claim 1 (line 6) recites "fibers reinforcements". It should recite --fiber reinforcement--.

Claim 2 (line 1) recites "fibers reinforcement". It should recite --fiber reinforcement--.

Claim 2 (line 3) recites "assure the resistance required to the objective to which they are intended". It appears the applicant may have intended to recite --assures the resistance required to the objective to which the ball joints are intended--.

Claim 3 (line 1) recites "fibers reinforcement". It should recite --fiber reinforcement--.

Claim 3 (line 3) recites "in the body of the stem and in the ball joints boxes". It should recite --on the body of the stem and in the ball joints' boxes--.

Claim 3 (line 4) recites "the assembly". It should recite --the tie rod--.

Claim 3 (line 5) recites "provided in the threads of the stem". It should recite --provided on the thread of the stem--.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Kobayashi (USPN 5,092,703).

As to claim 1, Kobayashi discloses a tie rod with application of polymer composite with fiber reinforcement, having a stem 1 provided at its ends with ball joints 2 each composed of a box 5, a bearing 4, a protection cover 9 and a ball pin 3, the tie rod having the function of fixing pieces and components of a mechanical system between themselves, providing to them angular and rotational movement, supporting the strains concentrated therein, wherein the stem of the tie rod is made of material comprising a polymer composite with fiber reinforcement and combined with components (ball pin 3) of a metallic material provided in the ball joints (ball pin 3 is provided within ball joint 2 and combined with stem 1; Figures 1-3, column 5 lines 20-31, column 7 lines 28-44).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1 and 2 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pazdirek et al. (USPN 6,398,446) in view of Kobayashi.

As to claim 1, Pazdirek et al. discloses a tie rod having a stem **22** provided at its ends with ball joints **16** each composed of a box **14**, a bearing **36**, a protection cover **20** and a ball pin **30**, the tie rod having the function of fixing pieces and components of a mechanical system between themselves, providing to them angular and rotational movement, supporting the strains concentrated therein, wherein the stem of the tie rod is made of material comprising a composite and combined with components (ball pin **30**) of a metallic material provided in the ball joints (ball pin **30** is provided within ball joint **16** and combined with stem **22**; Figure 9, column 4 lines 5-21 and 41-46).

Pazdirek et al. fails to disclose a tie rod wherein a stem of the tie rod is made of material comprising a polymer composite with fiber reinforcement.

Kobayashi teaches a tie rod with application of polymer composite with fiber reinforcement, having a stem **1** provided at its ends with ball joints **2** each composed of a box **5**, a bearing **4**, a protection cover **9** and a ball pin **3**, the tie rod having the function of fixing pieces and components of a mechanical system between themselves, providing to them angular and rotational movement, supporting the strains concentrated therein, wherein the stem of the tie rod is made of material comprising a polymer composite with fiber reinforcement and combined with components (ball pin **3**) of a metallic material provided in the ball joints; the fiber reinforced polymer composite being corrosion resistant and providing improved strength and decreased weight at a suitable manufacturing cost (Figures 1-3, column 5 lines 20-31, column 7 lines 28-41).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify a tie rod as disclosed by Pazdirek to have a stem made of a polymer composite with fiber reinforcement as taught by Kobayashi to provide for a corrosion resistant, light weight tie rod, the fiber reinforcement providing improved strength.

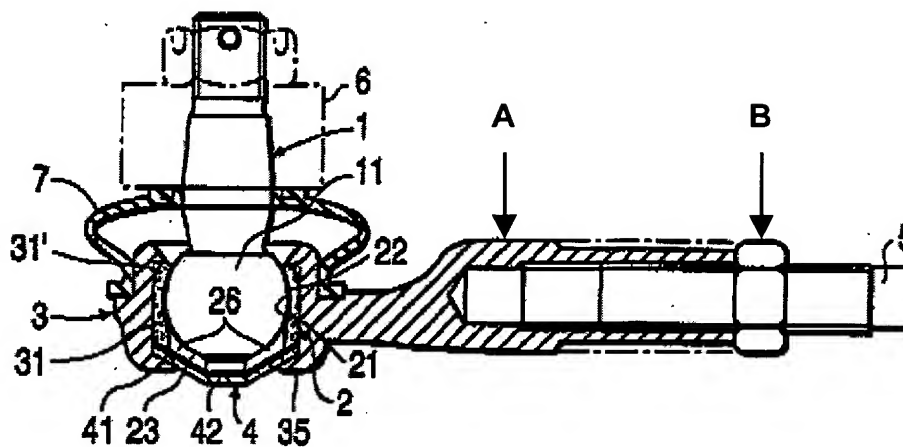
As to claim 2, Pazdirek et al. discloses a tie rod wherein ball joints **16** are attached to the ends of a stem **22** by chemical fixing (adhesive), making the tie rod a tie rod with fixed length (column 4 lines 41-46).

The applicant is reminded that process limitations are given no patentable weight in product claims. See MPEP § 2113. "The patentability of a product does not depend on its method of production. " In re Thorpe, 777 F.2d 695,698,USPQ 964,966 (Fed.Cir.1985).

6. Claims 1 and 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shimizu et al. (USPN 5,368,408) in view of Kobayashi.

As to claim 1, Shimizu et al. discloses a tie rod with application of polymer composite with fiber reinforcement, having a stem **5** provided at its ends with ball joints **3** each composed of a box **A** (Figure 6 reprinted below with annotations), a bearing **2**, a protection cover **7** and a ball pin **1**, the tie rod having the function of fixing pieces and components of a mechanical system between themselves, providing to them angular and rotational movement, supporting the strains concentrated therein, wherein the stem of the tie rod is combined with components of a metallic material provided in the ball joints (box **A** of ball joint **3** has a metallic cross-hatching; Figure 6).

FIG. 6



Shimizu et al. fails to disclose a tie rod wherein a stem of the tie rod is made of material comprising a polymer composite with fiber reinforcement.

Kobayashi teaches a tie rod with application of polymer composite with fiber reinforcement, having a stem 1 provided at its ends with ball joints 2 each composed of a box 5, a bearing 4, a protection cover 9 and a ball pin 3, the tie rod having the function of fixing pieces and components of a mechanical system between themselves, providing to them angular and rotational movement, supporting the strains concentrated therein, wherein the stem of the tie rod is made of material comprising a polymer composite with fiber reinforcement and combined with components (ball pin 3) of a metallic material provided in the ball joints; the fiber reinforced polymer composite being corrosion resistant and providing improved strength and decreased weight at a suitable manufacturing cost (Figures 1-3, column 5 lines 20-31, column 7 lines 28-41).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify a tie rod as disclosed by Pazdirek to have a stem made of a polymer composite with fiber reinforcement as taught by Kobayashi to provide for a

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corrosion resistant, light weight tie rod, the fiber reinforcement providing improved strength.

As to claim 3, Shimizu et al. discloses a tie rod wherein ball joints **3** are attached to the ends of a stem **5** by means of a thread on the body of the stem and in the ball joints' boxes **A**, making the tie rod a tie rod with variable length, the adjustment of its length and the locking of the tie rod being provided by nuts **B** provided on the threads of the stem and that are tightened against the boxes of the ball joints (Figure 6).

Conclusion

The prior art made of record and not relied upon is considered pertinent to the applicant's disclosure. The following patents are cited to be added to the applicant's list for they further show the state of the art with respect to tie rod assemblies:

Mattila (USPN 5,529,316) is cited for pertaining to adjustable length tie rods.

Gleason, II (USPN 6,161,451) and Pazdirek et al. (USPN 6,505,989) are cited for pertaining to tie rods having a stem made of a fiber reinforced polymer composite.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael P. Ferguson whose telephone number is (703)308-8591. The examiner can normally be reached on M-F (7:30-4:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lynne H. Browne can be reached on (703)308-1159. The fax phone numbers for the organization where this application or proceeding is assigned are (703)872-9326 for regular communications and (703)872-9327 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)308-1114.

MPF
March 25, 2003



Lynne H. Browne
Supervisory Patent Examiner
Group Art Unit 3679